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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,820	08/30/2001	Anthony Eugene Zortea	3Com-85	9245

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EXAMINER	
TORRES, JUAN A	
ART UNIT	**PAPER NUMBER**
2631	

DATE MAILED: 10/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/942,820	ZORTEA, ANTHONY EUGENE	
	Examiner	Art Unit	
	Juan A. Torres	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *31-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings were received on 10/11/2005. These drawings are accepted by the Examiner.

Claim Objections

Claim 40 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 40 depends from claim 34 and recites the same limitations that the preceding claim 34.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 31-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rakib (US 6307868) in view of Trans (US 6377640).

As per claim 31 Rakib discloses a bi-directional communication having plural channels, each channel comprising a master connected at a near end of a channel and a slave connected at an opposite end of channel (figure 1 central unit and remote unit column 4 lines 8-20); the master comprising (a) a first transmitter coupled to channel and having a master Tx clock signal (figure 1 blocks 18, 20 and 24 column 4 lines 9-40

and figure 32); (b) a first receiver coupled to the channel and comprising (figure 1 block 70 column 4 lines 29-30): i) an analog-to-digital converter that periodically samples at a sampling time Ts (figure 31 block 754); ii) a clock recovery circuit that signal embedded in a signal received and generates a master Rx signal received from the channel (figure 1 block 32 column 4 lines 34-35); iii) a metric processor connected to an output of the analog-to-digital converter that produces a metric signal reflective of amplitude differences between the received signal and allowed amplitude levels of the received signal (column 4 lines 41-46, figure 27 and figure 28 blocks 1512 and 467. Block 1512 indicates that the CU detects an amplitude error for the RU; to detect an amplitude error it will need to use a metric processor to produce the metric signal); the slave comprising (a) a second receiver coupled to the channel and comprising a clock recovery circuit for generating a Slave Rx clock from the signal received from the master (figure 1 blocks 42, 44 and 52 column 4 lines 15 and figure 30); (b) a second transmitter coupled to the channel and having a Slave Tx clock signal, where the master Rx clock signal is frequency locked to the Slave Tx clock signal (figure 1 blocks 42, 60, 62, 65 and 66 column 4 lines 24 and figure 33); (c) a first controllable delay element for generating the Slave Tx clock signal from the Slave Rx clock signal (figure 1 block 65 column 16 lines 5-29); the apparatus further comprises a decision processor, connected to the master and responsive to the metric signal, for determining a delay value to be provided by the first delay element in the slave which will maximize the metric signal and issuing a command, via the first transmitter and the channel, to the second receiver in order to set a delay provided by the first delay element to the delay value, so as to reduce distortion

caused by cross-talk in signals received over the channel, by the first receiver and thus facilitate clock and data recovery by the first receiver (column 6 lines 1-65; column 84 line 38 to column 85 line 22;figure 1 block 65 column 16 lines 5-29 figure 6 column 22 lines 8-26 figure 27 and figure 28 blocks 1512 and 467). Rakib doesn't disclose that the maximization of the metric also includes reducing the distortion by the echo. Tran discloses that the crosstalk and the echo is inherently included in the distortion of the signal and the metric processor will also inherently compensate for the echo (figures 1B-3, 2 and 10 column 38 lines 32-47). Rakib and Trans are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the system disclosed by Rakib the echo cancellation disclosed by Trans. The suggestion/motivation for doing so would have been to optimized channels and synchronization based on precise control of the frequency, amplitude, and phase of the waveform of the signal (Trans abstract). Therefore, it would have been obvious to combine Rakib with Trans to obtain the invention as specified in claim 31.

As per claim 32, Rakib and Trans disclose claim 31. Rakib also discloses that in the first receiver, a second delay element, situated between the Master Rx clock signal and the A/D converter and responsive to the decision processor, which controllably delays a sampling time, Ts, provided by the converter, where the decision processor independently sets the delays provided by the first and second delay elements in order to further maximize the metric signal (figure 1 block 32 and figures 6 and 7 5a and figure 31 bloc 886 column 31 line 50 to column 32 line 31).

As per claim 33, Rakib and Trans disclose claim 32. Rakib also discloses that the metric processor comprises a processor for computing a proportion of samples of the received signal provided by the master falling within the allowed amplitude levels relative to those of the samples that fall outside of the allowed amplitude levels (column 4 line 41-65 figure 27 block 1512 and column 55 lines 8-36).

As per claim 34, Rakib and Trans disclose claim 33. Rakib also discloses that the decision processor is connected to all the masters and is responsive to the metric signal produced in each of the masters so as to change the phase in each corresponding one of the slaves in order to maximize all the metric signals produced by all the masters (abstract; figure 1 block 28 column 4 lines 8-65; an column 12 line 38 to column 13 line 8).

As per claim 40, Rakib and Trans disclose claim 34. Rakib also discloses that the decision processor is connected to all the masters and is responsive to the metric signal produced in each of the masters so as to change the phase in each corresponding one of the slaves in order to maximize all the metric signals produced by all the masters (abstract; figure 1 block 28 column 4 lines 8-65; an column 12 line 38 to column 13 line 8).

As per claim 35, Rakib and Trans disclose claim 31. Rakib also discloses that the decision processor is connected to all the masters and is responsive to the metric signal produced in each of the masters so as to change the phase in each corresponding one of the slaves in order to maximize all the metric signals produced by all the masters

(abstract; figure 1 block 28 column 4 lines 8-65; an column 12 line 38 to column 13 line 8).

As per claim 36, Rakib and Trans disclose claim 31. Rakib also discloses that the metric processor comprises a processor for computing a proportion of samples of the received signal provided by the master falling within the allowed amplitude levels relative to those of the samples that fall outside of the allowed amplitude levels (column 4 lines 41-46, figure 27 and figure 28 blocks 1512 and 467. Block 1512 indicates that the CU detects an amplitude error for the RU; to detect an amplitude error it will need to use a metric processor to produce the metric signal).

As per claim 37, Rakib and Trans disclose claim 31. Rakib also discloses that the decision processor is connected to all the masters and is responsive to the metric signal produced in each of the masters so as to change the phase in each corresponding one of the slaves in order to maximize the metric signals produced by all the masters (abstract; figure 1 block 28 column 4 lines 8-65; an column 12 line 38 to column 13 line 8).

As per claim 38 Rakib discloses a bi-directional communication link having a plurality of channels with a master and a slave at respective ends of each one of the channels so as to define respective pluralities of masters and slaves, the master issuing a Master Tx clock, the slave constructing both a Slave Rx clock frequency-locked to the Master Tx clock and a Slave Tx clock frequency-locked to the Slave Rx clock, the apparatus (figure 1 central unit and remote unit column 4 lines 8-20. Each master has a different orthogonal code) comprising a metric processor, situated within the master,

which produces a metric signal reflective of amplitude differences between a signal received by the master from a corresponding one of the slaves and allowed amplitude levels of the received signal (column 4 lines 41-46, figure 27 and figure 28 blocks 1512 and 467. Block 1512 indicates that the CU detects an amplitude error for the RU; to detect an amplitude error it will need to use a metric processor to produce the metric signal); and a decision processor, connected to the master and responsive to the metric processor, for changing phase of the Slave Tx clock relative to the Slave Rx clock in the corresponding one of the slaves in order to maximize the metric signal produced by the metric processor and thereby reduce distortion caused by cross-talk in signals received over the channel by a receiver in the master and thus facilitate clock and data recovery by the receiver (column 6 lines 1-65; column 84 line 38 to column 85 line 22;figure 1 block 65 column 16 lines 5-29 figure 6 column 22 lines 8-26 figure 27 and figure 28 blocks 1512 and 467). Rakib doesn't disclose that the maximization of the metric also includes reducing the distortion by the echo. Tran discloses that the crosstalk and the echo is inherently included in the distortion of the signal and the metric processor will also inherently compensate for the echo (figures 1B-3, 2 and 10 column 38 lines 32-47). Rakib and Trans are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the system disclosed by Rakib the echo cancellation disclosed by Trans. The suggestion/motivation for doing so would have been to optimized channels and synchronization based on precise control of the frequency, amplitude, and phase of

the waveform of the signal (Trans abstract). Therefore, it would have been obvious to combine Rakib with Trans to obtain the invention as specified in claim 38.

As per claim 39, Rakib and Trans disclose claim 38. Rakib also discloses that the metric processor comprises a processor for computing a proportion of samples of the received signal provided by each of the masters and which within the allowed amplitude levels relative to those ones of the samples that fall outside of the allowed amplitude levels (column 4 lines 41-46, figure 27 and figure 28 blocks 1512 and 467. Block 1512 indicates that the CU detects an amplitude error for the RU; to detect an amplitude error it will need to use a metric processor to produce the metric signal).

As per claim 41, Rakib and Trans disclose claim 38. Rakib also discloses that the decision processor is connected to all the masters and is responsive to the metric signal produced in each of the masters so as to change the phase in each corresponding one of the slaves in order to maximize the metric signals produced by all the masters (abstract; figure 1 block 28 column 4 lines 8-65; an column 12 line 38 to column 13 line 8).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Juan Alberto Torres
10-25-2005

KEVIN BURD
PRIMARY EXAMINER